What if Water Cost as Much as Gasoline?

Goals: To have students understand that as a resource becomes scarce, the price we are willing to pay for that resource increases (i.e. understand the general concept of supply and demand). To help students realize that as a resource becomes more expensive, we often find ways to conserve that resource.

Subjects: Science, Math, Home Economics, Social Studies

DPI Objectives: SC: A1-A3, B6, D1-D4

EH: A2

SS: A1, B1-B3, C1, D3

Grades: 6-9

Materials:

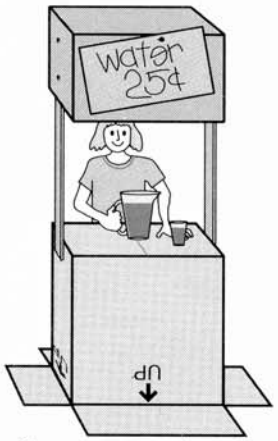
- What if Water Cost as Much as Gasoline? activity sheet
- play money (master provided)
- legal size envelope for each student

Background: At one time energy—gasoline and fuel oil—was so inexpensive that people did little to conserve it. People drove as much as they wanted, energy-efficient cars were less of a concern and homes were built with very little insulation. Today water is relatively inexpensive. Few people try to conserve water just as few people conserved gasoline or fuel oil when they were less expensive. This activity is designed to help students begin thinking about the value of water.

Procedure:

1. Interview a grandparent or older neighbor. Ask about the present and past price of gasoline, fuel oil and water. Ask also about conservation of these resources. Questions should include:

   - What is the lowest price you remember paying for gasoline? Did you conserve gasoline then?
   - What price do you pay for gasoline today? Do you try to conserve it now? If so, how?
   - When you began driving, what would your response have been if someone would have told you that the price of gas would reach more than $1.00/gallon in the 1980's?



   - Do you remember when it was less expensive to heat your home? Did you conserve energy then? How?
   - How much does it cost to heat your home in the winter today? Do you try to conserve energy now? How?
   - How much water do you use in your home in a year? Do you try to conserve water? Why? How?
   - Do you work harder to conserve energy or water? Why?

2. Discuss your findings.

3. Ask students to imagine they are taking a trip into the future over a specified weekend. Water costs the same as the current price of gasoline (record current price on activity sheet master before photocopying or write $1.00 on sheet to make calculations easier). They will have to purchase all the water they use in a weekend by placing "money" in an envelope. (Make copies of money master sheet.)

Since some people have more money than others, some students should be given more money than others. Randomly give students $30, $40, $50. Students should also be given the "Sale on Water" activity sheet to record the water they use. Remind them to estimate the amount of water used on their behalf when a parent does laundry or prepares a meal (e.g. wash 4 loads of laundry, 4 people in family, assume that the water for one load was used on the behalf on the student).

Each time water is used, calculate the cost and deposit money in the envelope.

4. Discuss your results.

   - Who used the least water? Who used the most? What accounted for the difference?
   - Was it easy to live within your water budget?
   - Did you have to conserve water? Why? How did you try to conserve water?
   - Should people try to conserve water? Why or why not?
   - Should water cost so much that some people are forced to conserve it more than others?
   - Making a natural resource expensive is one way to encourage people to conserve. What are other ways to encourage people to conserve natural resources?

     Examples:

     Education programs—try to teach people to conserve the resource

     Rationing programs—set strict limits on water use

     Tax credits and deductions—Provide economic incentives to conserve the resource

   - Which methods to encourage conservation do you think would be most effective? Which are the most fair?
   - Should people conserve water even if it's inexpensive? If so, why?

> "Water Wheels" with ideas for household water conservation may be ordered for this activity. See Resources—Additional Educational Materials.

Going Beyond:

1. As a class, compose and send a letter to a public works department in a dry western/southwestern city (e.g. Tucson, Santa Fe, Denver, Los Angeles or Las Vegas) to find out how they charge residents for water. Do they encourage conservation? If so, how?

Adapted from: ***Local Watershed Problem Studies****. 1981. Cooperative Educational Service Agency 16 and the Water Resources Center, University of Wisconsin, Madison.*

What if Water Cost as Much as Gasoline? activity sheet

Sale on water! Only_____per gallon!

A) **Multiply the number of gallons of water listed after each use below by the price per gallon.** Put this answer in the space provided. An example has been done for you using the price of $1.00 per gallon of water.

example: Bath 30 gallons x $1.00 = $30.00 per bath

B) **Each time you use water:**

1. Put a mark (|) after the type of water use. Keep a tally of each use.
2. The price listed under "cost" will tell you how much to pay for that water use. Now put that amount of money in your envelope.

Use			Price Per Gallon		Cost Per Use		Check here each time you use water
Washing dishes by hand	10 gallons	X	_____	=	_____	each use	☐
Automatic dishwasher	11 gallons	X	_____	=	_____	each use	☐
Flushing toilet	4 gallons	X	_____	=	_____	each use	☐
Cooking & drinking	3 gal/day	X	_____	=	_____	each use	☐
Washing hands	1 gallon	X	_____	=	_____	each use	☐
Brushing teeth (water running)	2 gallons	X	_____	=	_____	each use	☐
Shower	18 gallons	X	_____	=	_____	each use	☐
Bath	30 gallons	X	_____	=	_____	each use	☐
Washing clothes	30 gallons	X	_____	=	_____	each use	☐